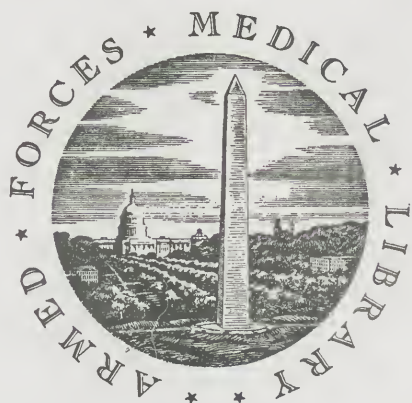


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ARTICLE VI.—*Observations on the Treatment of Curvatures of the Spine.* By J. K. MITCHELL, M. D. one of the Physicians to the Pennsylvania Hospital, and to the Alms-house Infirmary.

IN consequence of the partial success of the plan of treatment recommended in a former number of the North American Medical and Surgical Journal, I have been favoured with an opportunity of seeing a greater number of cases of curved spine, than falls under the observation of physicians in the course of ordinary practice. From the more extended experience thus afforded me, I have derived increased confidence in the treatment there laid down. I am now disposed to believe that an *early* application of, and judicious perseverance in, the means suggested, will secure, in most cases, an exemption from the disagreeable and encumbering deformity to which such diseases usually give rise. I am even led to hope, that where the deformity has already become great, the patient, *if young*, may recover to such a degree, as to be able to conceal as much of the curvature as cannot be entirely removed.

It is very difficult, during the progress of antero-posterior curvature, to ascertain its immediate cause. The evidence of a carious state of the vertebræ, is never, or at least very seldom, conclusive. That such a state of the bony structure must occasionally exist, is shown by the demonstrative examinations of the morbid anatomist. But the symptoms by which we are to distinguish it during life, from disease of the ligaments and interosseous cartilages, are not yet clearly ascertained. It is not *certain*, therefore, that in any of the many cases of antero-posterior curvature, which presented all the common signs of diseased bone, the bone was truly carious; but it was probably so in all; and as, in all the cases of this species of curve, which were properly treated* by the suspensory apparatus, beneficial results followed, am I not entitled to believe, that in these, the most unpromising cases of this malady, this manner of treatment may be recommended?

* In several cases I could not prevail on the parents to compel the obedience of the patients; and the treatment was consequently imperfectly and irregularly applied. In some cases, the roughness of the floor, and the smallness of the apartment, denied to the patients the benefits of exercise, while placed in either the chair or spine-cart.

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In *very young* subjects, the *lateral* or *serpentine curvature* is usually easily remedied; and that, too, without such restraint or confinement, as, in the ordinary mode of treatment, impairs the tone and vigour of the constitution, and, according to the authority of Mr. SHAW, produces augmented weakness of the more solid portions of the spine itself. But in those cases of this curve, which happen to girls just approaching the age of puberty, the cure is much more difficult. It is, therefore, of great importance to ascertain the true causes of such affections, as we may then readily prevent what we cannot easily remedy. The alarming increase of a disease so inimical to the graces of form and carriage, renders such an inquiry doubly interesting. Those who are most liable to it, move in that circle of society, in which the sentiments are most carefully cultivated, and a highly educated taste is a customary possession; and where, consequently, a distorted figure, and ungraceful carriage, will ever be considered a severe calamity. When we carefully examine the habits and customs of those who are the most usual subjects of lateral curvature, we are immediately disposed to ascribe their maladies to the following causes:

1st, To the too early restraints imposed on the sportive and more active exercises of girls.

A few years ago, a girl, at thirteen or fourteen years of age, was treated as a child, indulged in the sports and gambols of childhood, and permitted to make free use of the muscular system, and thus to acquire muscular vigour. It is now unfortunately otherwise. The child, at eleven or twelve, is carefully incased in a laced corset, which, with the aid of a stout board or piece of iron in front, ties down the muscles of the back, and effectually restrains the free and graceful motions of the trunk. A slight rotary motion of the spine is scarcely practicable, and to stoop is almost impossible.* Even with such a paralyzing incumbrance, the poor child might find, in robust sports, some muscular exercise; but, with the corsets, come other restrictions. While the child is permitted to lace tightly enough to emulate the form of womanhood, she assumes, and is encouraged to assume, the considerate movements of maturer life. She may dance, but she must

* Dr. Physick thinks that lateral incurvation of the spine, depends mainly, if not exclusively, on the use of tight corsets, or other confining vestments; and declares, that in the first stage, the curve may be removed, merely by throwing aside such fetters, and using appropriate exercise.

not "pull and haul;" nor must she engage in any action by which the muscles of the spine and back are exercised.

Among the natural consequences of such management, are great debility of the muscular system of the trunk, a relaxed and atonic state of the ligaments of the spine, and such a condition of the bone and interosseous cartilage as predisposes to diseased structure.

The partial exercise of the muscular system, is nearly as disadvantageous to health, as the total want of exercise; hence girls, at the age and under the circumstances stated, are liable to considerable irregularity in the digestive actions, and to occasional deviations from a healthy state of the skin. The former is indicated by all the usual manifestations of dyspepsia, particularly a loaded tongue and unpleasant breath, irregular evacuations and whimsical appetite; the latter, by a dry and scaly eruption. The pressure which corsets too tightly applied to a young frame produce, particularly when efforts are made to form a waist before the proper time, must deprave the functions of the abdominal viscera, and impair the free motion of the ribs, so important to the salutary performance of respiration.

A girl of an originally feeble constitution, or of a scrofulous temperament, is, under the circumstances stated, in imminent danger of either curved spine or consumption. The occurrence of the latter often prevents the onset of the former, by *concentrating the elements of irritation* in the lungs. The access of the former, is often, very often, followed by the latter; and most commonly, consumption of the lungs decides the fate of the patient. In a few cases, caries and psoas abscess are found in the train of curvature originally serpentine. Robust forms may resist the influence of the worst physical education; and marked curvatures of the spine, do not, in this healthful city, arise in a large proportion of the females subjected to the greatest restraint. But slight deviations from a correct form, are more common than would be supposed by one, who has not given particular attention to the subject. The deviation is, in every female case which has been subjected to my scrutiny, caused by a convexity of the spine towards the right shoulder, and a similar convexity towards the left hip; or, in other words, the line is serpentine, bending to the left side below, and to the right, above.

This direction of the curve may be traced to the second cause of lateral incurvity in growing females; viz. Errors of posture while sitting, standing, and lying in bed.

According to the present system of fashionable education, a posture nearly that of which I am now treating, is assumed for the greater part of the time passed in the school-room. The young female, taught much less needlework and housewifery than was formerly fashionable, is employed steadily at a desk, in writing, arithmetic, drawing, map-making, constructing mathematical diagrams, &c. &c. &c. With the left arm resting on the desk, and the head and left hip bent towards the left side, the pupil presents an incurvity temporary at first, but gradually acquiring a fixed character. At the desk, is passed a much greater time, than was formerly thought requisite; and when the poor girl leaves it for the harp, her posture is again that which is favourable to the production of deformity. It is surprising to see the ease with which a child, thus educated, falls into the habit of resting her left arm on her left knee, and taking, in moments of relaxation, the curve which use has rendered most comfortable. If the time which is not included in school hours were suffered to glide away, partly in vigorous and appropriate exercise, all the crookedness enforced in school, would, in most cases, be overcome by the tendency of healthy structure to maintain its natural and graceful erectness. When exercise is resorted to, the confining and perpendicular corset withholds the muscles and ligaments of the spine from all participation. But the lessons are of such a character, as to difficulty and length, that a girl of any spirit and emulation cannot indulge in exercise, save of the mind.

According to the notions deduced from the former treatment of spinal diseases by recumbency, we might suppose that the couch of repose would tend to exert a counteracting influence, and would, partially at least, restore the straightness of the figure. Just the contrary effect is produced by the bed. For reasons well known to physicians, most children sleep on the right side. In this posture, in a feather bed with a high pillow, the right shoulder sinks deeply into the down, or is thrust towards the right side, the head is extended to the left, and we have again the *common* curved condition of the spine. Is it surprising that a delicate girl, whose general health is impaired by so many causes; whose inspirations of even the foul atmosphere of a crowded school, are unnaturally limited, should *bend* beneath the weight of such a host of causes of crookedness? Nay, is it not wonderful that any female form should remain perfect under such a system?

Having pointed out the prominent causes of such incurvities, it will be an easy task to show the mode of preventing them.

And, 1st. Let no child wear corsets until the form has attained to nearly its full height, and acquired strength and consistency.

2dly. Let such exercises be permitted, and indeed commanded, as are likely to give full play to the muscles of the trunk and spine. The dumb-bells, and more particularly a spine-swing, without the suspensory apparatus, are among the best means of this kind.* The act of polishing furniture by rubbing it, is also a useful exercise of the same class of muscles; but to afford a full benefit, the motion of the arms should be from side to side rather than backwards and forwards. The writer of this paper has often admired the erectness and fine muscular development of the Chinese boatmen; who, in the propulsion of their vessels by "sculling," perform such a lateral motion as is here suggested. In them too the muscles of the back are remarkably beautiful. While I *insist* on the exercise of the muscles of the trunk, I would not be supposed insensible to the value of exercise of all kinds, particularly in the open air.

3dly. Great pains should be taken to prevent the errors of posture so common in our schools. The desks should be so constructed, as to admit of the pupil's standing and sitting alternately; while much less time should be consumed at the desk, at which the pupil should not be permitted to prepare such lessons as do not *require* its use. It has been supposed that seats without backs are most suitable; but on such seats the pupils will assume the lounging posture, which throws the left arm on the left thigh for support, and exhibits a very ungraceful incurvity of the spine. When a child is not in muscular action, its muscles should be in a state of repose; and, therefore, the seats should have an easy backward slope, the most favourable to rest. Nothing exhausts muscular vigour more quickly than a state of continued muscular tension, such as is exerted in standing still for a considerable time. The same remark is applicable to the sitting upright without support. The inclined plane, now so much in vogue in Europe, acts on the principles here laid down.

4thly. The feather bed and high pillow should be supplanted by a mattress and very small pillow, without bolster; and the children should be taught to sleep in various positions.

* The girl must stand in such a swing, and keep it in motion by her own efforts.

5thly. In cities, at least, the first symptoms of indigestion in growing girls, should be carefully removed; and that too by such means as are calculated to give tone and vigour to the whole frame. The cure should be attempted, as far as practicable, without resort to the use of drugs. Among the best means for that purpose, are the cold shower bath, riding, if convenient, and a total suspension of the exhausting mental exercises of the school. If such measures should prove unsuccessful, let there be applied such a *medical* treatment as the case may itself suggest. As a defect in tone, or strength of digestive action, is apparent, we might be led, by the evil influence of a name, to the use of *tonics*, as the systematic writers on materia medica have absurdly denominated an incongruous assemblage of salts and bitters, of acids and alkalies. Such medicines often augment the appetite, even to a degree of voracity, without producing a corresponding force of digestion; while, in the cases to which reference is now made, there is more frequently atony of the bowels, than debility of the stomach; more commonly defective hepatic, than feeble gastric action. In conformity with such views, the best *tonics* are medicines of the class of *cathartics*, among which rhubarb or jalap, with sup. tart. potas. has been found most useful. To do much good, such medicines must, when resorted to, be applied to the case *perseveringly*. A considerable experience in the use of cathartics has convinced me, that, when irregularly taken, they increase the torpor of the intestinal canal; but when regularly employed, for a *considerable length of time*, they most frequently leave the bowels in a healthful and active condition, and with power to sustain themselves in the improved state. This conclusion is the result of facts and experience; but contrary to that which is *taught*, relative to the use of cathartics. It is true, that for some time there is a call for the gradual increase of dose; but, beyond a certain period, there arises a necessity for its gradual diminution, until at length it is known that there is no longer need of any artificial aid. Why should it be otherwise? The medicines used do not impair the tone of the stomach, and they remove the burdensome load of feculence which rests in the bowels. Very soon, in almost every case, renovation of health is perceptible in the countenance, the tongue and skin, clearly indicating that the system, if it suffer at all from such medicines, suffers less than from the evils which they remove. After a time, the intestines become habituated to

regular evacuations, and unaccustomed to the presence of a load of feculence. Their tone is braced by the return of general vigour; and, while they and the liver are taught to act again in concert, care is taken to remove, by the gentlest measures, that which would oppress them. At length, by increase of irritability, by consentaneous hepatic action, by the promotion of constitutional energy, by the power of a regular habit, the digestion returns to its wonted healthfulness, and the very seeds of the disorder disappear. The *faces* themselves become sufficiently stimulating, and tend, as in health, to promote their own evacuation.

Unfortunately for the poor girls in whom such symptoms appear, little attention is paid to them. The ease with which older females bear habitual costiveness, and the frequency of this complaint among *them*, render mothers and teachers insensible to the long train of ills, which may ensue from them in growing girls. They are, therefore, either entirely neglected, or subjected to the action of medicines of a domestic character, which tend to weaken the tone of the stomach, and to increase the torpor of the bowels. At the period of life of which we are treating, the mother or teacher ascribes every disease to a single cause; and endeavours, by hot and stimulating articles, to produce a result which is scarcely ever accelerated by such means; and which is too often prevented from appearing, by injudicious and untimely applications. Meanwhile the disease is gaining ground; and, after a time, the inclination of the head to the left side, and a slight but awkward elevation of one shoulder, are charged on the child as a piece of affectation, and she is tormented with chidings and posture-lessons. No suspicion is excited as to the true cause of such deformity; which arises, however, in every case, from a slight lateral incurvation of the spine. It is to counterbalance the right lateral bend of the backbone at the shoulder blades, that the head is thrown to the opposite side; but very soon a more unseemly counterbalance is discovered in the left lateral curve of the lower part of the spine, by which the left hip is made protuberant. When this is effected, the head is carried with a better grace, and hopes are entertained of a speedy rectification of what is supposed to be a mere voluntary error of carriage. But while the girl is subjected to all the evils of a modern fashionable edu-

cation, she can *never* recover. The deformity *will increase*, and such a disease be instituted as is truly lamentable, and almost hopeless.

The lateral incurvation, which appears at the approach to puberty, is not, so far as I have observed, complicated with any tendency to a carious state of the spine; for not one case of this kind has been followed by antero-posterior deformity—a deformity uniformly produced by a wasting of the vertebræ. But, on the other hand, serpentine curvature *in very early life*, is almost always followed by the angular projection which is usually ascribed to caries; and in such cases, the latter form of spinal disease ends the life of the patient. I have at present under my care, several cases of lateral incurvity, which have been, in their progress, complicated with angular projection of the spine, in all of which the patients are yet under eight years of age. I am also in attendance on several cases of lateral curvature, in which there seems to be no tendency to any other disease of the spine. These are all females, and more than thirteen years old. There is, then, a marked difference in the degree of danger of lateral curvature of the spine, as it presents itself in children, and in those who are approaching the period of puberty. In one class, it is a disease arising out of constitutional tendencies, and is ordinarily accompanied by a scrofulous temperament; and is not only destructive to the beauty of the form, but also painful and perilous. In the other class, it is the effect of the usual accidents of posture, and the debility superinduced by bad diet, indolence, and an insalubrious atmosphere, by excessive mental exertion, and the total privation of healthful regular exercise. Besides, it is seldom painful, and hardly ever attended with danger. It is not improbable that, in the latter class of cases, some may be found, in which the one disease produces the other, but this has not occurred under my observation.

Whether lateral incurvity appear in a child, or in one who has passed the age of childhood, it is highly important to apply remedial measures promptly and patiently. If we fail to arrest the disease in the child, we may look for the supervention of a much more formidable malady; and if we neglect it in the adult, we shall finally encounter a fixed and incurable deformity, destructive alike to the beauty of the form, and the moral com-

fort of our patient. It is not possible to form a system of prophylactic measures against the disease in the younger class, as its causes are not yet ascertained. For the other class, the preventives have been already laid down. When the *lateral curve* becomes perceptible, and announces the existence of disease of the spine and its braces, it is highly important to meet the case promptly. As there has arisen an inability to support the erect posture, and as the course of invigoration necessarily demands time, we must, to avoid the effect of habitual flexure, either lend extrinsic support, or lay the patient in a recumbent posture. There lie objections to both measures. Artificial support disposes the muscles to rely on it; and even the ligaments, when disused, lose their tone and tension. A great and continued prop of any kind, tends, therefore, to increase that condition of the spine, on which the deformity is dependent, and is so far objectionable. It would, if alone relied on, be productive of very injurious consequences, and tend rather to augment the disease than promote a cure. But if applied only as a temporary support, while all promising measures for enforcing tone and enhancing vigour are employed, and if laid aside gradually, as the spinal column acquires self-supporting power,—mechanical contrivances form an invaluable auxiliary in the management of such cases, whatever may be their causes, and at whatever age they may occur. If detected *in its very origin*, lateral curvature demands no such aid; for the patient has yet the power of erecting herself by volition; and the instantaneous removal of existing causes, and the application of corroborating remedies, will suffice for the cure. When volition is incompetent to erect the spine, the danger of habitual incurvation becomes at once apparent, and must be guarded against by such a suspensory power, as will correct the inclination. It is equally necessary to use mechanical measures to overcome the *twisting* of the spine, by which one shoulder is advanced before the other. As well might we, when a sapling is bent, attempt, by digging at its roots and watering it, to make it stand erect, as to remove a decided deformity of the spine, by invigorating its muscles and ligaments. If soon reinforced, these braces may *suspend the progress* of the inclination; but, as invigoration is slowly accomplished, and the very curve is a cause of weakness, we must resort to external mechanical correctives, to keep the

spine straight, until its own braces are adequate to its vertical support. For such a purpose, the instruments are almost numberless. Those which I prefer, are delineated in Mr. SHAW's excellent work, and in my paper in the first number of this Journal.

To the treatment by continued recumbency, the objections are much more weighty. Increased tone and vigour can scarcely be expected from a course of management, of which exercise forms no part; and we have the high authority of Mr. SHAW for the assertion, that confinement in a recumbent posture, while it denies all hope of general invigoration, softens the intervertebral substance, and produces a degeneracy of the structure and functions of the spine. It does more: it often places the patient in a posture as crooked as possible. It is so difficult to keep a patient straight in bed, that the highest authority suggests the application of steel-lined corsets at *bed-time*. As there is seldom, in such cases, much pain or sensible irritation, it is difficult to perceive the advantages promised by recumbency. It does not, even temporarily, correct the incurvation. It has no tendency to augment tone and vigour. It impairs digestion, enfeebles the muscles, relaxes the ligaments, and produces degeneration of the spine. In the few cases of lateral curvature, where exercise causes pain, its occasional application may be necessary; but I have seen no case in which it could not be dispensed with. When I say dispensed with, I mean as a leading measure in the process of cure; for patients, affected with lateral incurvation of the spine, should repose on an inclined plane, as advised by Mr. SHAW, during the greater portion of the time which is not spent in exercise. Exercise should be taken regularly, and for an adequate period of every day; but the patient should be always properly sustained by mechanical aid, while in an upright posture. In very young subjects, the spine-cart, spine-chair, &c. may be employed with advantage during the whole period of exertion; but in others, corsets, lined with slender steel, or whalebone plates, may, frequently suffice to support the spine during a part of each day; taking care, however, not to bind down too tightly the muscles which are to be invigorated by exercise.

To prevent the patient from assuming a crooked posture in bed, it has been recommended to apply the steel-lined corsets during the hours of repose. This practice may, at first view, appear

inconsistent with the objections often urged against the use of corsets; but if at all admissible in the treatment of this disease, corsets are most usefully applied, when the patient is in bed. When in an erect posture, the support of the corset is hurtful; because the muscles which usually brace the spine are not called into exercise, and the patient leans upon the extraneous support. But in bed, all the spinal braces are relaxed, and the corsets merely prevent the assumption of a crooked attitude. They may be thrown aside in the morning; or if essential to the maintenance of a proper erectness, may be worn for such part of the day, as is not spent in the spine-cart, or some instrument of that class.

Having devised the means of immediately reducing the curvature, it next becomes the duty of the physician to obviate the causes, and to remove the effects of the disease of the spine.

The remote or predisposing cause, is often, in young subjects, what is usually termed, a scrofulous temperament. A fair and fine skin, light hair and eyes, large lymphatic glands, soft, yet large limbs, a tongue partially divested of its *epithelion*, a tumid abdomen, &c., characterize the children most liable to the disease. They are sanguine, irritable, and timid; and, therefore, predisposed to cephalic diseases, and frequently die of hydrocephalus. When lateral curvature of the spine affects them, it makes its onset very early in life; often in the second year, and seldom after the fourth. It also usually attacks male subjects, though there are many female cases. Looking at the state of the system in such cases, the *general* treatment cannot be easily missed. The want of tone and vigour is every where visible. The digestion is feeble and irregular; the muscles are soft and flabby; the lymphatic system predominates, and the nerves are particularly excitable. The constitution is defective in vigour, and calls for a course of bracing remedies. Good air; cold bathing, especially in salt water, or salted lime-water; a regulated nutritious diet; regular purging; frictions and champfoeing, and moderate, but frequent exercise,—constitute the chief part of the general management of such cases. It seems scarcely necessary to suggest the propriety of securing the child against great mental inquietude, and severe moral exercise of every kind.

But general treatment will not alone suffice for a cure in all cases; remedies must be applied to the local disease. To use

them with advantage, we should have clear views of the condition of the spinal column; but unfortunately there yet exists but little settled knowledge on this subject. There are nearly as many hypotheses as there are writers. One ascribes the curve to the irregular action of enfeebled muscles; another to relaxation of the spinal ligaments; a third, to a change of character in the intervertebral cartilages; a fourth, to mere errors in posture combined with general atony; and a fifth, to a disordered state of the *medulla spinalis*. There are also those who attribute the incurvation to irregular deposition and absorption of osseous matter in the bodies of the vertebræ, by which these bones are so changed in form, as to cause the lateral bending and even twisting of the spine. As each has demonstrated by cases the truth of his theory, we are inclined to believe that each is right in all that he affirms, and wrong in all that he denies. In fact, in most *juvenile* cases of curved spine of some standing, the muscles are atonic, the ligaments relaxed, the intervertebral cartilages softened, and, in protracted affections, even the form of the vertebræ is altered. In such cases, little influence is exerted by errors of posture; as very young children are not subjected to much restraint either at the school-desk, or by means of corsets. It is probable, that, partaking of the general debility, and of the redundant liquidity of the system, the muscles and ligaments of the spine feel the earliest influence of the local disease. For the same reason, the intervertebral cartilages cannot be very long exempted from participation in the morbid action of the part. Finally, the pressure and tension on the vertebræ cause a gradual change, and they are found at length to assume a cuneiform shape. Chiefly to prevent the latter organic change, and to arrest the elongation of soft and stretched ligaments, would I insist on the early and patient application of supporters to the spine. While they are applied, the spine and appendages must be strengthened by frictions, champfoing, and those motions which call into play the muscles of the trunk. Occasionally dry cupping will promote action, and assist in the recovery of tone; and when the irritation near the spine amounts to pain, scarifications are beneficial. When the pain occurs as a consequence of fatigue, Dr. JARROLD's application, a sponge soaked in warm water, is very soothing and agreeable. Although I have not tried electricity, I am led to

suppose that it would be useful, as it often promotes vigour, and relieves irritation in other cases.

Unfortunately we do not often see a case of lateral curvature in a young child, until the disease is inveterate, and the patient threatened with paralysis of the lower extremities. Then, when the spinal marrow is involved, and changes in structure have taken place in the column itself, we are summoned to give late and almost hopeless attendance. Nay, we are not always applied to before the morbid spine has become carious, and antero-posterior incurvation, with its deformity and agony, is added to the accumulation of malady. When caries takes place, and it often supervenes in very young subjects on lateral incurvity, we are required to give consideration to the long established treatment by issue and seton, and the more recent one by blisters, pustulation, and moxa. That by such means, irritation and inflammation may be reduced and even removed, cannot be questioned; and that some cases of caries of the vertebræ have been thus cured, is a truth supported by high authority. But the long and tedious confinement which accompanies such treatment, and the severe pain and great trouble by which it is attended, deter from its frequent and patient application. It not unfrequently causes hectic fever, and its train of evils; and it tends, by confinement and inaction, to augment the disease of the intervertebral cartilages, and the softness of the ligaments. It promises, at least, only to arrest the progress of caries, but does not pretend to lessen the existing deformity. Besides, to succeed at all, it must be persisted in for years, and in some cases almost for a lifetime. If then a cure can be effected by milder means, and in less time, they must be preferred. But when milder measures promise melioration of figure, as well as the arrest of the disease, we can scarcely hesitate to give them a trial. In a conversation with Dr. PHYSICK, held this very day, he informed me, that he considered rest, recumbency, and long continued regular purging, as the means most to be relied on, in the treatment of carious vertebræ. Several cases of this formidable disease were thus cured by him, at an early period of his professional career; and more recently, he has been successful in the application of the same means. Viewing, as he does, caries of the vertebræ, and hip disease, as dependent on the same causes, he was led to the adop-

tion of a common treatment for both; and he has not been disappointed in the result. In those cases, which are not meliorated under such treatment, especially after a patient trial, this great surgeon lends his sanction to the application of issues, and other local remedies of the same kind. That such treatment will cure the disease, cannot be doubted; because we know some of the individuals who have been thus relieved, and the authority is unquestionable. That a rigid adherence to a recumbent posture, with total privation of exercise, did no injury to the spine and joints, the occurrence of which is so strongly insisted on by Mr. SHAW, may be ascribed, in part at least, to the regular use of cathartics. As, however, such a confinement is exceedingly irksome to children, and must, in some degree, impair the general vigour, it is important to ascertain whether as speedy and certain a cure is not compatible with less restraint. Some of the following cases will prove, that such restraint is not always necessary, and that, in many carious affections of the spine, exercise, with all its advantages, may be enjoyed without lessening the probability of restoration to health. It will also be perceived, that relief from pain is often greater during the use of the spine-cart, than during recumbency and total inaction. Finally, as in many of the cases, lateral curvature is complicated with caries, the suspensory treatment assumes greater importance and promises better results.

Cases of lateral incurvity in girls approaching the age of puberty.—For reasons obvious to delicate minds, the initials of the names of the girls, and a minute history of the cases, cannot be given. Six of the cases have been subjected more or less completely to the treatment recommended. They were all cases of some duration, presenting a degree of disfiguration, insusceptible of farther concealment. In all, there was an ungraceful advancement and elevation of one shoulder, and an unnatural projection of one scapula, while a very conspicuous deviation from its usual appearance was perceptible in one collar bone. In all these cases, the treatment suggested in a former part of this essay was applied; and in all, save one, there has resulted a considerable improvement of the figure. One case has defeated all such measures, and, after a laborious application of the best means of cure, remains yet unchanged. In none of these cases has the figure

been restored to its natural state ; though in some, the remaining deformity is readily concealed by the clothes.

Cases of curvature in young children.—In most of the cases of this class, there existed both kinds of incurvation ; the order of accession being such as to give precedence to the lateral.

Among those whose cases of this class were described in a previous paper, already referred to, A. S. continues well, and possesses still an erect and handsome figure, and has not used his spine-cart for many months. E. C. who was thought to be nearly cured, has experienced some increase of the antero-posterior curve ; and the disease is, perhaps, yet making a very slow but certain progress. J. H. recovered so far as to be able to attend at school, and to engage in the gambols of his little play-fellows. His caries appeared to have ceased its action : but during the last month he was affected with pain in the head ; and after a few days' illness, died apparently of *hydrocephalus internus*. In his last illness he never complained of his back. No opportunity of making a *post mortem* examination was afforded. The other cases, the histories of which were given in that paper, remain yet in health.

Case 1st. Earle Carson, four years of age, was shown to me on the 29th of October, 1826. He was then confined to a recumbent posture, in consequence of the loss of the use of his lower limbs. As the legs were often rigid, he was frequently deprived of the power of sitting erect—a posture rendered painful to him in consequence of a disease of the spine, by which an angular projection was caused near the upper section of the dorsal vertebræ.

As in the case of A. S. the occiput rested on the back, so as to render it difficult to pass the finger between them. The usual irregularity was presented by the ribs and sternum. Disturbed often during the night, by severe pain in the back, and under the epigastric region, the little patient was denied the relief usually obtained by change of posture ; for he suffered more keenly by being moved. His external appearance was that which indicates the lymphatic temperament, and he presented all the ordinary symptoms of diseases of this class. His skin was rough, though fine, his bowels were costive, his breath was fetid, his mind active and sensitive, and he had a frequent, irregular, forceless pulse. Sometimes he experienced hectic paroxysms. The

treatment was founded on the indications. The curvature was lessened by mechanical means adapted to his helpless state; cathartics regularly given, restored the vigour of intestinal action; and the bath of lime-water and salt was corrective of the diseased state of the cutaneous organ. Under such treatment, he passed from a condition of extreme attenuation, to one of ruddy plumpness. His appetite and digestion became excellent; his pain annoyed him no more; he bore even rough handling well; and while his *neck* displayed no longer an unnatural curve, his legs, becoming gradually obedient to volition, served, though yet imperfectly, to impel his spine-cart. He, in fine, appeared to be in good health.

As a proof of the advantage of suspension, I ought to mention, that when the child was in a state of progressive improvement, his grandfather lowered the head piece, so as to relax the chin-band; in consequence of which the legs were again in a few days paralyzed. By increasing the degree of suspension, the limbs were soon restored to use.

About six months after the commencement of the medical management of this case, the child began to complain of severe pain *in the head*, and in a few days died. A *post mortem* examination showed the marks of inflammation and effusion in the brain. The spine was found carious at the angular projection, and the bodies of three dorsal vertebræ were gone. A light yellow consistent caseous matter occupied their place. The interosseous cartilages were softened, and here and there exhibited reddish spots, as if inflammation had existed on their surface.

Case 2nd, presented a condition of spine, which appeared to me so hopeless, as to induce me to advise against any treatment. The daughter of a respectable tobacconist, Mr. A. in Second street, was, by a long course of disease of the spine, greatly deformed. Indeed, the hump on the back was nearly as great as is seen in any case, and the gastric pain was so severe as to destroy the comfort of the patient. At the earnest and repeated solicitation of the parents, I was induced to use appropriate measures, and to my own surprise, found the general health susceptible of complete restoration, and the deformity capable of marked improvement.

Case 3rd, was brought to me from New York. A child of

wealthy and affectionate parents, this little girl had been placed under the care of the most eminent physicians, and subjected to the full influence of the most approved practice; but the deformity continued to increase, until the figure was entirely destroyed, and the general health undermined. Frequently, she was confined because of the weakness of her limbs. The symptoms were very similar to those of the preceding cases, and the treatment was, of course, nearly the same. Contrary to expectation, improvement was manifest, from the time of the use of the spine-cart, the bath, and cathartics. Her general health has become excellent, and she is so much improved in figure, as to lead her father to express, in his last letter, a confident hope of the attainment of a perfect cure.

To detail all the cases of this kind, would be tedious and useless. It may be said in general, that in no one case, where the child would submit, and the parents were resolute and patient, has the disease destroyed the patient. The greater number have been under progressive improvement, some remain stationary, and in a few, the disease, though retarded, is advancing in its course.

Among the curious cases advantageously subjected to the proposed treatment are, that of a son of Dr. T. of N——n, a child of Mr. M., Second street near Race, and several others. The following case was communicated to me by Dr. HARRINGTON.

Curvature of the Spine.—History of a Case, by W. H. HARRINGTON, M. D.

On the 1st of May, 1826, I was requested to attend F. R., a boy 6 years old, who was affected with a lateral or serpentine curvature of the spine.

Over the upper vertebra of the loins, there was a painful tumefaction of the muscles, under which could be felt a considerable angular prominence of the bone.

The sternum, and anterior part of the ribs, projected forwards.

The child experienced great fatigue from little exercise; was frequently roused from sleep by painful twitchings of the lower extremities; and during the day, sought relief from pain and exhaustion, in the lap of his nurse, or over the seat of a chair.

His tongue was thickly coated with a moist yellowish fur. His pulse was quick; his skin covered with a scaly eruption; his ab-

domen very hard and protuberant; his appetite depraved, and his bowels were costive. He often complained of pain in the breast, difficult respiration, and palpitations. He stumbled when he attempted to walk alone, and drew his legs up and crossed them, when in a sitting posture. I thought the practice recommended by Dr. J. K. MITCHELL suited to this case, and accordingly directed the daily exhibition of a cathartic, composed of one part of jalap, and two parts of cream of tartar; a shower bath of lime-water, in which a small portion of common table salt was dissolved, and a nutritious diet.

At the end of two weeks, the tone of his system was evidently improved; his strength increased, and his appetite was restored to its natural condition. At this period, the spine-cart was obtained, in which the patient was placed four times a day, and directed to remain there, an hour at each time. At every visit, and the visits were made with considerable intervals, I elevated the rod a little. In a few weeks, I observed that he carried his head more erect, and walked with less difficulty, and apparently with more confidence. The curve became less and less apparent; the tenderness and swelling in the neighbourhood of the loins gradually diminished; and all the other unfavourable symptoms presented a milder character, until the beginning of September, when, in consequence of the cure appearing complete, I discontinued my visits.

December 20th, 1826.—On this day, I visited my patient, and found him perfectly recovered, and able to attend to his juvenile sports, with his wonted vigour and strength; and one of the swiftest pedestrians of his age in the neighbourhood.

February 8th, 1827.

In concluding, I should be wanting in a sense of public duty, did I not confess, that in the application of the remedies insisted on in this essay, I have met with many difficulties, not anticipated when I wrote my first paper.

The confinement to the spine-cart has been found much more irksome, than, from its effects in the earliest cases, I had reason to expect.

I have been obliged, in many cases, to substitute rhubarb, and other cathartics, for the usual purgative; and I have found great difficulty in sustaining the patience and resolution of the parents

during a confining and irksome treatment, necessarily of long continuance. But the most formidable objection is afforded by the suspicion, that the cure of a scrofulous natural issue of the spine, to which the system has been long accustomed, creates an increased disposition to disease of the brain, and will demand the use of artificial issues, when we are on the eve of a cure. Those, however, who have encountered in practice many instances of this formidable malady, will admit, that the success attending the treatment which is founded on the symptoms, is, if not always successful, at least more salutary than any other.

- Dr. Gibson

